

Development of controlled releasing drug (CRD) for root canal disinfection

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I. Objectives

Endodontic disease is caused primarily by bacteria that interact with periradicular host from the root canal system. Chlorhexidine gluconate is known to be effective to eliminate *Enterococcus faecalis* which resists to other intracanal medicaments. The aim of this in vitro study was to develop a slowly releasing root canal disinfectant using chlorhexidine gluconate and chitoic acid.

II. Materials and Methods

Three different groups were prepared with different drug release mechanisms. In group A, paper points as used core material were loaded with 20% chlorhexidine gluconate. Group B, after treated as group A, was coated with chitosan. Group C was similar to Group B except for the thickness of chitosan coating. Each group was soaked with 3 ml distilled water in a cuvette and the concentration was measured at every decided time by UV spectrophotometer.

III. Results

The results demonstrated that the releasing rate of group C, group B was statistically significantly greater than group A.

IV. Conclusions

The releasing rate of chitosan coating group was reduced with comparing to non-chitosan coating group. This data indicate that chitosan is available as a carrier of polymeric drug for root canal disinfection.